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## NASA SEEKS INDUSTRIAL PARTNERS TO MAKE SPACE PRODUCTS

Guidelines have been set up for innovative joint ventures which will make it easier for U.S. companies to use the environment of outer space for commercial manufacturing.

NASA is offering industry "equity partnership ventures" in the use of its Space Shuttle transportation system, technical advice, data, equipment and facilities for commercial purposes. NASA Administrator Robert A. Frosch calls the action "necessary and proper to achieve the objective of national technical superiority through joint action with U.S. domestic concerns."

The guidelines are intended to facilitate the entry of American industry into an area traditionally left to the Federal government because of the high technology and high economic risks involved.

Space flight has been virtually untapped as a unique laboratory for materials processing. Ground-based research, however, as well as experiments in the Apollo, Skylab and Apollo-Soyuz flight programs and with sounding rockets, showed that materials in a liquid state behave much differently in the near weightlessness of space than on Earth, and that this behavior in space can be used to advantage in preparing a number of substances. For instance, there are no convection forces to make differing fluids segregate and no need for containers to hold materials as they are cast.

As a result of extensive materials-processing research already conducted on Earth, areas of potential commercial interest in space are: semiconductors -- electronics, computers; infrared detectors -- medicine, spacecraft; nuclear detectors -- medicine, spacecraft; solid state lasers -- communications, optics; microwave devices -- communications, solar power; castings, alloys, composites and metal foams -- metallurgy, machine tools; blood fractionation, purified hormones, enzymes, vaccines, products of live cells, cell culturing -- medicine.

The joint venture program envisages a government-industry relationship in which the risk capital and technical know-how of industry works in concert with the resource capabilities of NASA to develop and enhance U.S. commercial leadership in the field of materials processing.

To this end, NASA is providing a number of incentives to American industry, including:

- Flight time on the Space Transportation System;
- Technical advice, consultation, data, equipment and facilities;
- Joint research and demonstration programs;
- Proprietary information protection.

American companies desiring more information on NASA's joint venture program should write to: Dr. John Carruthers, Director, Materials Processing in Space, Code EM-7, NASA Headquarters, Washington, D.C. 20546.